

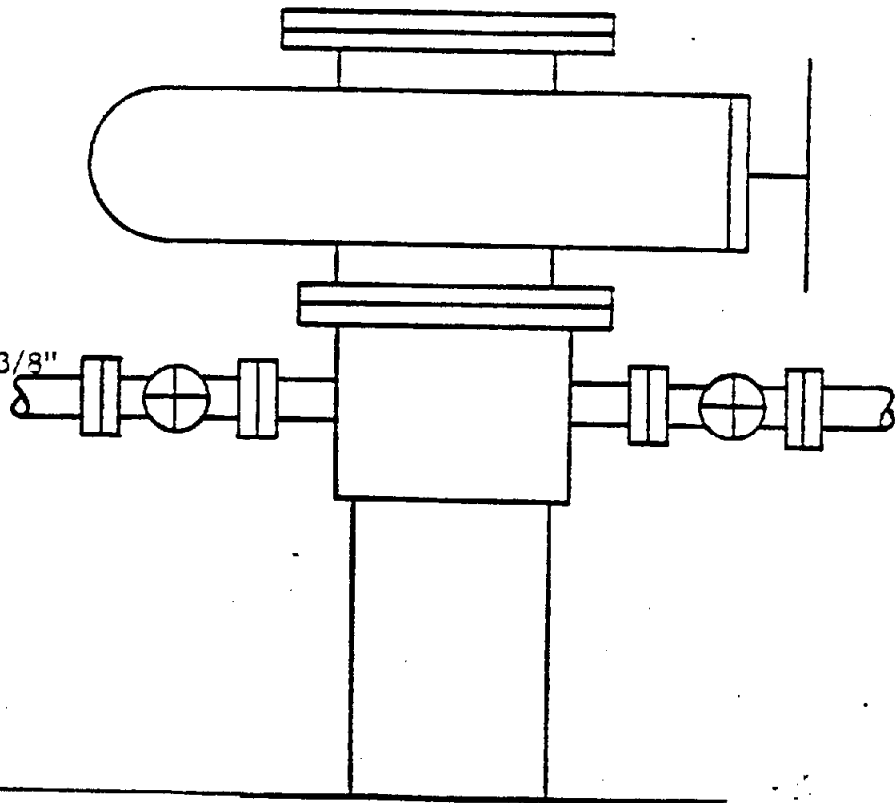
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DIVISION OF OIL & GAS  
SACRAMENTO

12" 400 X 12" 400  
CHAPMAN GATE VALVE

12" 400 ANSI X 13-3/8"  
S.O.W. WELLHEAD  
WITH 2-3" VALVED  
OUTLETS

13-3/8" CASING



HL POWER COMPANY  
"Wen" 1  
(035-90064)  
13/29N/15E MD B&M

WEN #1  
WELLHEAD COMPLETION PROFILE  
EXISTING CONDITIONS

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## Brown Hanger Packers



H. L. POWER COMPANY  
"Men" 1  
(035-90064)  
13/29N/15E MD B&M

### Brown Hyflo Hanger Packer Product No. 293-03

This versatile hanger packer is both rugged and compact. Cement jobs are improved because gas migration is blocked at the liner top, and because the operator can reverse excess cement from the hole without putting pressure on formations below the liner. Improved circulation and low-pressure drop are maintained during cementing because of the Hyflo's large bypass areas. The Hyflo hanger packer may be ordered with or without external hold-down slips.

A Brown Type C-2 setting tool is used to run the liner into the well and to compress the packer sealing element. The hanger is set by picking up and rotating the run-in string. After cementing is complete, the setting tool is picked up, allowing the setting dogs to shoulder on top of the setting sleeve. Additional set-down weight is then applied to set the packer element.

Materials suited for H<sub>2</sub>S service are available on request.

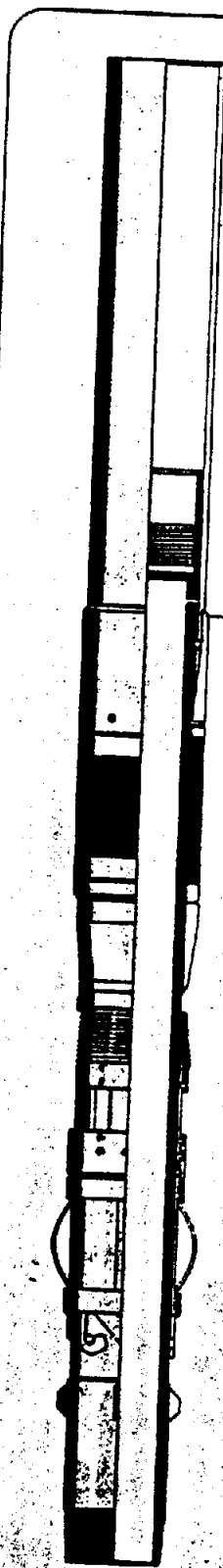
### Brown D Hanger/Packer Product No. 293-02

The Brown D hanger/packer serves as both hanger and packer when the liner is not to be cemented. As the liner is hung, the seal is compressed to pack off against the casing ID. The Brown D hanger/packer is available with either left- or right-hand, open-bottom, automatic J-cage.

Normally used as the lower liner packer on a scab liner to isolate damaged casing, a CPH liner packer would be used to isolate the top portion of casing.

A Type C-2 setting tool with packer setting dogs is used to carry in the liner. The Brown D hanger/packer is set by right- or left-hand rotation. Weight is applied to set the packer seal. When the CPH liner packer is used, the setting tool is released with right-hand rotation and then picked up, allowing the setting dogs to rest on top of the CPH packer. Set-down weight will set the CPH packer seal and hold-down slips.

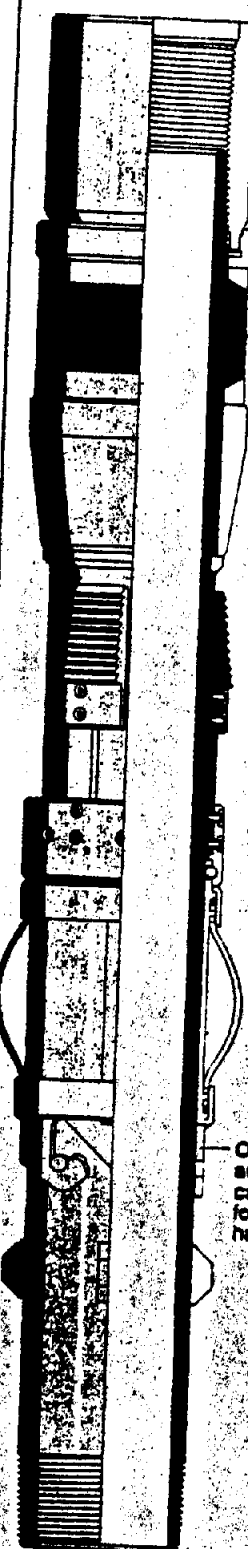
Materials suited for H<sub>2</sub>S service are available on request.



Large bypass areas improve circulation and reduce pressure drop.

External hold-down slips are optional.

Brown Hyflo Hanger Packer  
Product No. 293-03



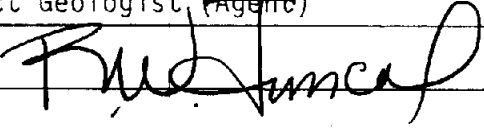
Seal is compressed as the liner is hung.

Open-bottom, automatic J-cage is available for left- or right-hand set.

Brown D Hanger/Packer  
Product No. 293-02

## REWORK/SUPPLEMENTARY NOTICE GEOTHERMAL WELL

*Submitted in compliance with Section 3724, Division 3, Chapter 4, Public Resources Code*

Operator <b>HL POWER COMPANY</b>		Well Designation <b>"WEN"-1</b>			
Field or GRA <b>Wendel <del>1000</del></b>		County <b>Lassen</b>	Sec. <b>13</b>	T. <b>29N</b>	R. <b>15E</b>
Name (Person submitting report - print or type) <b>Russell W. Juncal</b>		Street Address <b>1710 Main St.</b>			
Title (Agent or officer of company) <b>Project Geologist (Agent)</b>		City <b>Escalon</b>		State <b>CA</b>	Zip Code <b>95320</b>
Signature 		Date <b>9/27/88</b>		Telephone Number <b>209-838-3507</b>	

The present condition of the well is as follows:

1. Total depth: 5800 ~~xxxxx~~ ft
2. Complete casing record, including plugs:
  1. 20" conductor set at 95'.
  2. 13-3/8" casing set at 1016'.
  3. 9-5/8" liner hung from 764' to 5068'.
  4. 10-3/4" partial tie-back string set from 186' to 9-5/8" liner top at 764'.
  5. 8-3/4" open hole from 5068' to 5800'.
  6. Wellhead consists of 12" Chapman Valve nipples up to 12" 400 ANSI x 13-3/8" S.O.W. WKM wellhead. Top of wellhead assembly located approximately 1' above ground level.
  7. Proposed injection rate - 1000 gpm.
3. Last produced: August, 19 88

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1000 gpm

(Production in kg/hr. or gal./min.)

The proposed work is as follows:

Sequence of Operations:

1. Mobilize workover rig to location and rig up over well.
2. Remove 12" Chapman Valve.
3. Install WKM 12" 400 x 12" 400 casing head.
4. Install Blow Out Preventer on casing head and test same.
5. Pick up 8-3/4" bit with 9-5/8" casing scraper and run in hole with 2-7/8" tubing to 2500'.
6. Scrape through 9-5/8" casing from 2450' to 2550' with power swivel.
7. Pull out 2-7/8" tubing and lay down same with scraper and bit.
8. Rig up to run 7" casing.
9. Pick up Baker/Brown Model D Hanger/Packer (product no. 293-02) on bottom to 7" casing.
10. Pick up and run in hole with 7" casing to 2500±'.
11. Set Packer at 2500±'.
12. Set 7" casing slip in wellhead.
13. Remove blow out preventers, cut off 7" casing and install 7" x 9-5/8" pack-off unit in casing head.
14. Fill annulus with water and pressure test annulus.
15. Replace 12" Chapman Valve on top of new WKM 12" 400 x 12" 400 casing head.
16. Rig down and release rig.
17. Demobilize rig and equipment.

**REPORT ON PROPOSED GEOTHERMAL OPERATIONS**Mr. W. D. GertschHL POWER COMPANY1330 BroadwayOakland, California 94612Sacramento, CaliforniaFebruary 11, 1982

Your supp. proposal to repair cracked casing in well "WEN" 1  
API No. 035-90064, Section 13, T. 29N, R. 15E, M.D. B. & M., ---WENDEL field,  
~~Wendel Amador~~ Geothermal Resource Area, Lassen County,  
dated 2/5/82, received 2/8/82 has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The 27.3cm x 34cm casing lap shall be pressure tested to 13.8 bars (200 psi) for 10 minutes.
2. This well shall conform to provisions listed in P-Report No. PG181-1, dated June 18, 1981.

Bond No. SLR 6363222

RT:sr

M. G. MEFFERD, State Oil and Gas Supervisor

By Richard Thomas

(Signature)

Richard Thomas, Assistant Geothermal  
Officer

*A copy of this report and the proposal must be posted at the well site prior to commencing operations.*  
*Records for work done under this permit are due within 60 days after completion, suspension, or abandonment.*

Sacramento, California

## NOTICE OF INTENTION TO DEEPEN, REDRILL, PLUG OR ALTER CASING IN WELL - GEOTHERMAL

In compliance with Section 3724, Chapter 4, Division 3 of the Public Resources Code, notice is hereby given that it is our intention to commence work to repair cracked casing in  
(Deepen, redrill, plug, or permanently alter casing)  
well "WEN" - 1 ----- WENDEL Field,  
(Name and Number)  
Lassen County, Sec. 13, T. 29N, R. 15E, MD MD B. & M..

The present condition of the well is as follows:

1. Total depth: 1776 meters. (all measurements from ground surface)
2. Complete casing record, including plugs:

0 - 29m <sup>974'</sup> : 51-cm, K-55, 140 kg/m  
0 - 303m : 34-cm, K-55, 101 kg/m  
229 - 1052m : 24.5-cm, K-55, 53.6 kg/m  
<sup>751'</sup> - <sup>3451'</sup> Bridge plug presently set at 267m  
1052 - 1361m <sup>946'</sup> : 24.5-cm, K-55, 59.5 kg/m  
1361 - 1541m <sup>5045'</sup> : 24.5-cm, N-80, 59.5 kg/m  
1541 - 1776m : open hole

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3. Last produced: December 2, 1981

102 M<sup>3</sup>/hr  
(Production in kg/hr)

The proposed work is as follows:

The Notice Of Intention of January 19, 1982 regarding the casing repair operations to be undertaken on our WEN-1 well is amended as follows:

The 27.3 cm casing will be run from the liner hanger at 229 m back to a hanger installed at 56 m rather than to the surface as indicated in the previous Notice. This procedure will allow for the installation of a pump in the larger diameter surface casing. The point at which the 27.3 cm casing will be hung insures at least a 15 m overlap from the break in the surface casing.

*11 3/4" pump will be installed  
w/ pump 1500 gpm  
w/ 11 3/4" pump 1500 gpm*

HL POWER COMPANY

Name W. D. Gertsch		Title Project Manager	
Address 1330 Broadway		City Oakland, CA	Zip Code 94612
Telephone Number 415/893-8365	Signature <i>W. D. Gertsch</i>	Date February 5, 1982	

File one copy of this notice with the appropriate geothermal district office before work begins.

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

A.P.I. No. 035-90064

Sacramento, California

NOTICE OF INTENTION TO DEEPEN, REDRILL, PLUG OR ALTER  
CASING IN WELL - GEOTHERMAL

In compliance with Section 3724, Chapter 4, Division 3 of the Public Resources Code, notice is hereby given that it is our intention to commence work to repair cracked casing in  
(Deepen, redrill, plug, or permanently alter casing)  
well "WEN" - 1, ----- WENDEL Field,  
(Name and Number)  
Lassen County, Sec. 13, T. 29N, R. 15E, MD B. & M.

The present condition of the well is as follows:

1. Total depth: 1776 meters. (all measurements from ground surface)
2. Complete casing record, including plugs:

0 - 29m : 51-cm, K-55, 140 kg/m  
0 - 303m : 34-cm, K-55, 101 kg/m  
229 - 1052m : 24.5-cm, K-55, 53.6 kg/m  
Bridge plug presently set at 267m  
1052 - 1361m : 24.5-cm, K-55, 59.5 kg/m  
1361 - 1541m : 24.5-cm, N-80, 59.5 kg/m  
1541 - 1776m : open hole

3. Last produced: December 2, 1981

102 M<sup>3</sup>/hr  
(Production in kg/hr)

The proposed work is as follows:

*13 3/4*  
A 34 cm casing joint is cracked in the interval 60-72m. An annular BOP will be installed on the 30.5 cm master valve, and cement squeezed through an RTTS tool to seal the cracked interval. After standing overnight, the cement will be drilled out, and 27.3 cm casing will be run back to the surface from the liner hanger at 229m. The annular space between the 27.3 cm casing and the original 34 cm casing will then be filled with cement. The bridge plug at 267 m will be retrieved or drilled out, and well testing resumed.

*Cyrenna Thomas  
a revised notice will  
be sent*

HL POWER COMPANY

Name	W. D. Gertsch	Title	Project Manager
Address	1330 Broadway	City	Oakland, CA
		Zip Code	94612
Telephone Number	415/893-8365	Signature	<i>W.D. Gertsch</i>
		Date	January 19, 1982

File one copy of this notice with the appropriate geothermal district office before work begins.

HL POWER COMPANY  
"Wen" 1  
(035-90064)  
13/29N/15E MD B&M

1. Project site elevation: 4,050 feet
2. Drilling Period:  
Well Spudded: August 1, 1981  
Rig Released: September 22, 1981
3. Total Depth: 5837 feet (KB)  
(KB is 14½ ft above ground elevation)
4. Casing Profile: (Depths from KB)  
Conductor Pipe: to 95 ft (surface measurement)  
20-in., K-55, 94 lb/ft, butt welded.  
Surface Casing: to 1008 ft, 13 3/8-in, K-55, 68 lb/ft, STC  
Intermediate Casing: a) 764 ft (liner hanger) to 3464 ft, 9 5/8-in, K-55, 36 lb/ft, buttress  
b) 3464-4476 ft, 9 5/8-in K-55, 40 lb/ft, STC  
c) 4476-5068 ft., 9 5/8-in N-80, 40 lb/ft, STC  
d) 5068-TD open hole.
5. Temperature profile: Enclosed
6. Drillers Logs  
(See enclosed complete copy of Drillers logs)

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RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

A.P.I. No. 035-90064

Lassen, California

NOTICE OF INTENTION TO DEEPEN, REDRILL, PLUG OR ALTER  
CASING IN WELL - GEOTHERMAL

In compliance with Section 3724, Chapter 4, Division 3 of the Public Resources Code, notice is hereby given that it is our intention to commence work to Deepen  
(Deepen, redrill, plug, or permanently alter casing)  
well WEN 1 WENDEL Field,  
(Name and Number)  
Lassen County, Sec. 13, T. 29N, R. 15E, MD B. & M..

The present condition of the well is as follows:


1. Total depth: 1616:66 meters.
2. Complete casing record, including plugs:
  - a. Cement plug from 5070 to 5120.
  - b. 20" conductor from surface 96 feet.
  - c. 13 3/8" from surface to 1006 feet.
  - d. 9 5/8" from 1006 to 5070 feet.

3. Last produced: -----, 19 --

(Production in kg/hr)

The proposed work is as follows:

1. Drill out cement plug.
2. Continue 8 3/4" hole through anticipated "pay zone".
3. Set 7" production liner.

Name Kevin R. Johnson		Title HL POWER COMPANY	
Address 1330 Broadway, Suite 1400		City Oakland	Zip Code 94602
Telephone Number (415) 893-8365	Signature 		Date September 4, 1981

File one copy of this notice with the appropriate geothermal district office before work begins.



RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
**DIVISION OF OIL AND GAS**

**Report on Operations**No. TG181-1

Mr. Kevin Johnson  
HL POWER COMPANY  
1330 Broadway  
Oakland, California 94612

Sacramento, Calif.  
August 14, 1981

DEAR SIR:

Operations at well No. "WEN" 1, API No. 035-90064, Sec. 13, T. 29N, R. 15E,  
M.D. B & M, --- WENDEL Field, in Lassen County, were witnessed  
on August 11, 1981, Mr. C. Scharton, representative of the supervisor was  
present from 1300 to 1400. There were also present Gerald Long, Drilling  
Foreman, and Gus Gertsch, Co. Representative.  
Present condition of well: 13 3/8" cem. 1016'. T.D. 1016'. (standing cemented)

The operations were performed for the purpose of inspecting the blowout prevention  
equipment and installation.

DECISION: THE BLOWOUT PREVENTION EQUIPMENT AND INSTALLATION ARE APPROVED.

ADS:sr

M. G. MEFFERD  
State Oil and Gas Supervisor

By A. D. Stockton Deputy  
A. D. Stockton, Geothermal Officer

**REPORT ON PROPOSED GEOTHERMAL OPERATIONS**

Mr. Kevin Johnson  
HL POWER COMPANY  
1330 Broadway  
Oakland, CA 94612

Sacramento, California  
June 18, 1981

Your \_\_\_\_\_ proposal to \_\_\_\_\_ drill \_\_\_\_\_ well "WEN 1"  
API No. 035-90064, Section 13, T. 29N, R. 15E, BM B. & M., WENDEL field,  
Wendel Geothermal Resource Area, Lassen County,  
dated June 9, 1981, received June 12, 1981 has been examined in conjunction with records filed in this office.

**A. THE PROPOSAL IS APPROVED PROVIDED THAT:**

1. A COPY OF THIS NOTICE SHALL BE AVAILABLE AT THE WELLSITE AND SHALL REMAIN DURING ALL DRILLING OPERATIONS.
2. The sump must be constructed with steep sides.
3. Blowout prevention equipment is installed and maintained in operating condition at all times as follows:
  - a. Division of Oil and Gas Class 2M equipment shall be installed on the 50.8cm (20") casing.
  - b. Division of Oil and Gas Class 3M equipment shall be installed on the 34cm (13 3/8") casing.
  - c. Division of Oil and Gas Class 3M equipment shall be installed on the 24.4cm (9 5/8") casing.
4. Water with any beneficial use shall be protected from degradation and waste at all times.
5. Within 60 days of the completion of each well, a complete history containing the following is to be filed with this Division:
  - a. The date completed.
  - b. The exact elevation and location.
  - c. The total depth.
  - d. An accurate driller's log or electric log.
  - e. All temperature measurements

**B. THE DIVISION SHALL BE NOTIFIED:**

1. One day prior to the commencement of drilling.
2. To test the Class 3M blowout prevention equipment installed on the 34cm (13 3/8") casing. Give 24 hours advance notice.
3. To test the Class 3M blowout prevention equipment installed on the 24.4cm (9 5/8") casing. Give 24 hours advance notice.

**NOTE:**

1. Call Division Geothermal Unit in Sacramento for field engineer.
  - a. From 0800-1700 (916) 323-1786.
  - b. Nights and weekends (916) 662-4683 (answering service).

DT:ds

BOND #SLR 6363222

cc: DWR  
DF&G  
CRWQCB

M. G. MEFFERD, State Oil and Gas Supervisor

By Richard Thomas  
(Signature)

**A copy of this report and the proposal must be posted at the well site prior to commencing operations.**